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AN EXPLORATORY STUDY OF COLLECTIVE VALUES AND CONFLICTS AMONG COLLEGE PROFESSORS. VALUES, STATUS, INFLUENCE, SALARY, AND PHYSICS PROFESSORS.

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USING RATIO METHODS OF PSYCHOPHYSICS, THE INVESTIGATOR STUDIED LOCAL AND PROFESSIONAL STATUS SYSTEMS OF TWO PHYSICS DEPARTMENTS. TO CLARIFY THE NATURE OF AND THE RELATIONSHIP BETWEEN LOCAL AND PROFESSIONAL STATUS, AND, IN TURN, THEIR RELATIONSHIP TO INFLUENCE AND SALARY, RELEVANT DATA WERE COLLECTED FROM PROFESSORS AND GRADUATE STUDENTS THROUGH PERSONAL INTERVIEWS. THE RESPONDENT EXCHANGE THEORY OF STATUS, WHICH IS BASED ON A PROPORTIONAL RELATIONSHIP BETWEEN STATUS AND INCOME, WAS THE THEORETICAL FRAMEWORK WHICH PROVIDED THE RATIONALE FOR THE STUDY. POOLED ESTIMATES MADE BY THE PROFESSORS THEMSELVES INDICATED THAT THE AMOUNT OF INFLUENCE A PROFESSOR HAS WILL INCREASE AS A POWER FUNCTION OF THE AMOUNT OF LOCAL STATUS HE HAS IN THE DEPARTMENT. IN ADDITION, THE AMOUNT OF SALARY A PROFESSOR RECEIVED VARIED APPROXIMATELY AS A SQUARE ROOT FUNCTION OF HIS LOCAL STATUS. BOTH LOCAL AND PROFESSIONAL STATUS APPEARED TO BE DETERMINED BY A SET OF VARIABLES. IN GENERAL, THE RESULTS SUPPORTED THE RESPONDENT EXCHANGE THEORY OF STATUS. (GD)

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Robert L. Hamblin

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AN EXPLORATORY STUDY OF COLLECTIVE VALUES AND CONFLICTS AMONG COLLEGE PROFESSORS

Values, Status, Influence, Salary, and Physics Professors

In modern social exchange theory, intimate relationships are assumed to exist among valued attributes and behaviors which a person provides an organization, the status or esteem which he earns in that organization, his influence in that organization, and the salary which he receives. Consider the following propositions from Homans (1961):

> The more valuable to other members of a group the activities a man emits to them, the higher is the esteem in which they hold him (p. 162). (1)

> Definition: The larger the number of other members a single members is regularly able to influence, the higher is his authority in the group (p. 286). (2)

> The higher a man's esteem in a group, the higher his authority is apt to be (p. 268). (3)

> The value of what a member receives by way of reward . . . should be proportional to his esteem, that is, to the value to them of the activities he contributes (p. 234). (4)

These propositions suggest, then, that a person hypothetically earns status in an organization in direct proportion to the value of the attributes and behavior which he provides that organization, and the status, thus earned, determines (1) the amount of influence or authority a person will have in the organization, and (2) his salary--his official reward, that is--to the extent distributive justice obtains. The latter, the just or proportional relationship between status and income apparently exists as a quasi-equilibrium. To the extent that salary is not proportional to status, injustice obtains, and the greater the deviation from proportionality, the greater the distributive injustice. Such injustices produce anger or guilt which in turn trigger off all sorts of equilibrating behavior--a slow down or speed up in productivity, an increase or decrease in accuracy or quality of work, absenteeism, quitting, etc. Adams has an excellent discussion of the various responses to distributive injustice in an organization (1965).

There are bits and pieces of evidence which together suggest the above theory may be true in broad outline for some organizations, at least: (1) Blau (1955) has presented convincing evidence that in the governmental bureau which he studied,

status, as gauged by a number of behavioral indexes, was earned by providing the neophyte agents with competent help. Hamblin and Smith (1966) found that status in a graduate department of a university was apparently earned to the extent a professor provided what is usually assumed in academic circles to be valued attributes and behavior. (2) Blau's (1955) and other studies (cf. Homans 1961) have suggested that high status people generally have the influence. (3) Hamblin (1966) has shown that in the Navy, the rule of distributive justice apparently applies, that average income for the various officer ranks does, in fact, increase proportionately with the status or esteem usually associated with those ranks. The high correlations in this latter study suggest that what Homans calls a practical equilibrium does obtain because of distributive justice, and Adams (1965), shows that overages and underages in income (as gauged by the status of the recipient) create guilt and/or anger, respectively, which trigger equilibrating behaviors which work to bring income and status into proportion.

This evidence, while sketchy, is suggestive enough to warrant a full scale investigation of the theory in toto. While the theory should apply to any organization which employs people, the academic organization, particularly graduate departments of universities, provide an interesting case, in part because the status and incomes of graduate professors are in such great flux and in part because such departments provide important complications.

In the first place, in a graduate department there are two kinds of status which count: local status in the departmental organization and professional status in the relevant discipline. Local status appears to depend in part upon merit of teaching, merit of administrative and/or committee work, and upon taking the professor role generally, whereas professional status depends primarily upon the quantity and quality of published research or scholarly work. Yet, this is not to imply that local and professional status are unrelated. Presumably, the local status of a professor in almost any graduate department is determined in part by his professional status.[1]

The important theoretical question is whether local or professional status determines influence and salary in graduate departments. Since local status is supposed to be proportional to the value of that which the professor provides the department, it, and not professional status, should determine influence and salary.

Yet one who is intimate with the workings of graduate departments might guess that the above reasoning may not hold for salaries during periods of rapid flux as is now occurring in academia. Many raises in salaries are made to match outside offers. These offers are usually determined primarily by professional status. Therefore, salaries, particularly in the higher ranked graduate departments, may be determined by professional rather than local status.

These then are the substantive hypotheses. In testing them, I propose to use the ratio measurement procedures and, in general, the methodology developed in the new psychophysics by S. S. Stevens (cf. 1960 and 1962). These methods, thoroughly tested by now, are precise enough to give vigorous test to theory, particularly if it is expressed in the language of mathematics, the functional equation (cf. Hamblin, 1966). So, let me now turn to the mathematization of the above hypotheses.

As suggested previously (Hamblin and Smith, 1966), esteem or status apparently is a sentiment or a feeling. The important characteristic about feelings is that they have an involuntary quality; people usually do not think "Now I choose to be happy, to be sad, or whatever." Rather, the magnitude of these feelings states ordinarily increase or decrease automatically as a function of the magnitude of the conditioned or the unconditioned stimuli which produce them. Such involuntary or automatic responses are generally called respondents as contrasted with operant responses, and, as I have suggested elsewhere (Hamblin, 1966), stimulus-respondent relationships appear to be described by a power function:

$$R = cS^n$$

or in logarithms

$$\log R = \log c + n \log S$$

where $\underline{R}$ is the magnitude of respondent response, $\underline{S}$ is the magnitude of a conditioned or unconditioned stimulus which produces the response and where $\underline{c}$ and $\underline{n}$ are parameters which are determined empirically.[2] This bivariate case appears to generalize to the multivariate case as follows:

$$\log R = \log c + n_1 \log S_1 \ldots + n_k \log S_k$$

or

$$R = cS_1^{n_1} \ldots S_k^{n_k}$$

where $S_1 \ldots S_k$ are the magnitudes of the k stimuli which in fact combine multiplicatively to produce $\underline{R}$, the magnitude of the response. This general law appears to describe bivariate and multivariate status phenomena rather well ($\underline{R}^2$ is usually circa .97 - .98; cf. Hamblin, 1966). And it is expected to apply in the case of the above substantive hypotheses. In other words, as a response, professional status $\underline{S_p}$ is presumably a multiplicative power function of several stimuli, merit of publication $\underline{M_p}$, professorial demeanor $\underline{P_d}$, etc.:

$$S_p = c_1 P^{n_1} \quad D^{n_2} \ldots$$

Next in the chain, local status S_L is presumably a multiplicative power function of professional status S_p (which is now a stimulus), merit of teaching M_T, etc., perhaps as follows:

$$S_L = c_2 S_p^{n_3} \cdot T^{n_4}$$

Next in the theoretical chain, Influence I and Salary T are power functions of local status S_L, which now becomes a stimulus, perhaps as follows:

$$I = c_5 S_L^{n_5}$$

$$S_M = c_6 S_L^{n_6}$$

where the various cs and n s are parameters which will be determined empirically. Thus, in addition to testing the substantive hypotheses, the more general stimulus-response law again will be put on the line.

As in the previous study (Hamblin and Smith, 1966), it is assumed that a number of attributes and behaviors could be valued and perhaps are valued in one department or another, and thus determine status. However, the pervasive notion now is that academic status (local if not professional) increases as (1) the merit of a professor's publications increases, and (2) the merit of his teaching increases. Academic status may also increase with (3) professional age. Furthermore, it has been assumed that status increases with personal attributes such as (4) professorial demeanor, (5) cordiality, and (6) popularity (being liked as a person). Academic status may increase with (7) the merit of a professor's administrative or committee work, and (8) with his ability to obtain research and/or teaching grants. Finally, I assumed that a professor's status might be related to (9) the degree to which the evaluator knew the professor and his work. This last may not be a value, but perhaps a condition that should be held constant.[3]

It should be recognized that a professor participates simultaneously in several status systems. They earn status from the other professors in their department, from the others in their discipline, from the graduate students, and from the administration--the chairman and the dean. These various status systems may involve different sets of latent values that may be in conflict. Furthermore, the individual values of professors may conflict with the values which are functional for the department as a whole. However, any of these conflicts could result in the subversion of the departmental status system and thus seriously influence its educational and scholarly output.

From a strictly organizational point of view at least, a status system is subverted to the extent that status and, concomitantly, influence and salary are not exchanged for those attributes and behaviors of the professors which are manifestly functional for a graduate department as an educational organization. But what are the primary manifest functions or function of a graduate department? As far as I understand it, the main function is to produce well trained graduates with a Ph.D. (Otherwise there must be a fantastic but interesting conspiracy which has thus far eluded my detection, at least.)

A second function is to advance the state of knowledge in the discipline in question through research and scholarship which is published. While most graduate departments do not claim to be in business solely as a center for research, how does one teach people to be creative, dedicated researchers without having teachers who themselves are creative, dedicated researchers? Beyond that, a department requires a certain amount of administration which, in the case of graduate education (a very costly enterprise) includes a certain amount of grantsmanship. These three, then --meritorious teaching, research, and administration--appear to be the minimal functional requisites. Of course, there may be others such as friendly, durable social relationships. However, it is generally assumed that, as in most situations, such behaviors are reinforced by reciprocating in kind rather than in terms of status, salary, etc.

Even so, and this must be obvious, an organization does not value, it does not give status to the members of the organization, it is the members who give status to one another. Thus, the only way for a status system to be truly functional is for the members of the organization to value those things which are manifestly functional for that organization. This is an important point, and we will return to it later.

Before proceeding to the methods and to the results, a summary and purpose may be in order:

(1) I do not propose to test whether status is actually earned by providing valued attributes in behavior. Such a "causal" demonstration requires an experimental rather than a correlational design which is used here. While much informal evidence for such exchanges has been provided by Homans and Blau, the crucial experiments have yet to be done. In this paper, then, I just have to assume such an exchange.

(2) I am not attempting to prove that a sub-set of the independent variables do in fact represent attributes and behaviors valued by the departments in question. I have included as independent variables attributes and behaviors which are usually assumed to be valued in academia and I will just assume that those which are allotted to status are in fact valued.

(3) I do propose to test, insofar as it is possible to do so with data gathered in the field, using multiple regression analysis, for the stimulus-response chain postulated in the above theory. Thus, the present investigation should clarify the nature of and the relationship between local and professional status, and in turn, their relationship to influence and salary at least in the graduate departments investigated.

(4) I am also proposing to test the form which the possible chain of stimulus-respondent relationships will take in general. The dependent variables are expected to be a multiplicative power function of the independent variables in the multivariate cases, and a simple power function of the independent variables in the bivariate cases. I consider this a crucial aspect of exchange theory since it involves a detailed relationship between input and output.

(5) Finally, in a gross way, I want to relate educational and research output to the status systems of the departments investigated. In general I hypothesize that the educational and scholarly output of the department will be proportional to the degree the status systems reinforce the attributes and behaviors which are manifestly functional for the department, i.e., meritorious research, teaching, and administration in that order.

METHOD

The Departments Studied. The status systems in two graduate physics departments were investigated. Both were medium in size with 17 and 18 professors, respectively. Department A ranked in the 20s in the Carter Report but Department B was not ranked at all, possibly because its Ph.D. program was initiated in 1960. The faculty in Department A hesitated to cooperate; they had been deluged in the past with "sociological questionnaires" which they did not believe in, and some of the faculty were skittish about rating one another. However, several consented to be interviewed and five sets of estimates were finally obtained. I was rather nervous about using just five faculty observers to obtain an average, a collective representation of the faculty status system in question, but the results turned out quite well. Averaging is usually done to reduce measurement error and the more sets of measurement averaged, the better. However, the error variance in A is no larger than that obtained with large numbers of observers in Department B.

Department B was very cooperative. Only one of the faculty members interviewed required a "soft sell" to participate, and he for just a few minutes. In all, 14 faculty observers were used to obtain as many sets of estimates.

In addition, in A, 12 sets of estimates were obtained from advanced graduate students, and in B, 16 sets. These were from a sample of the graduate students in residence, the advanced ones who had been in the department for two or more years. I also attempted to get estimates by physicists outside of the two departments. Invariably, outsiders could estimate just one variable, professional status, and then, if at all, just for one to three of the "stars." I interviewed two deans only to find out that they could estimate neither status nor the other variables with any confidence. Rather, it became quite apparent that they relied almost entirely upon information given them by the chairman, his opinions as well as any factual material which he could or would provide them. Even so, it seemed to me that these deans clearly valued meritorious publications and teaching in that order. I also found that the new faculty members who had been abroad less than a year could not give estimates with any confidence.

I chose physics departments for two reasons: First, I rather guessed that the status systems in physics would be rather clear cut, possibly because their methods and scientific standards have a long respected history. Second, I am something of a frustrated physicist, having had some training in the subject and having read some in the history of physics, particularly Aristotle, Galileo, and Newton. Thus, I may have wanted to become acquainted with the social world that I had missed in choosing the social sciences.

Measurement. I personally interviewed all of the faculty observers. My instructions were improvised each time but were approximately as follows:

> Let's begin by having you estimate the merit of teaching of the various professors in the department using a new technique called magnitude estimation. We'll start by having you pick someone whose teaching is about average. Okay? (The observer would usually hesitate a minute or more, perhaps ask a question, and then give a name.)
>
> If we set the merit of A's teaching equal to 100 units, then how good is B's teaching? If it is 2-1/2 times as good, give him a 250; a third as good, give him a 33; three-fourths as good, 75. Make his number proportional to the merit of his and A's teaching as you see it. (After some hesitation and perhaps questioning, the observer would give a number.)
>
> If the merit of A's teaching is 100, how good is C's teaching? (Answer) D's teaching? (Answer) F's? (Answer) and so on. I would proceed to have the observers estimate the merit of teaching of each professor.

In a similar way I proceeded with all of the other variables, establishing an average setting that was set equal to 100 units, then estimating magnitudes as a ratio of that standard. With each observer with each variable, I tried to follow a different order of presentation, although no system was used to insure that the order would be random.

The following variables were measured using magnitude estimation; these were defined as follows:

Local Status. The esteem, the prestige, the respect the professor enjoys in this department.

Professional Status. The esteem, the prestige, the respect a professor enjoys nationally in the discipline.

Merit of Publications. Quality and quantity taken together.

Merit of Teaching. Quality and quantity taken together.

Professorial Demeanor. The degree he takes the role of a professor outside of the classroom.

Cordiality.

Likeability as a Person.

Influence or Power.

Merit of Administrative and Committee Work in the Department. Quality and quantity taken together.

Grantsmanship. The ability to obtain grants for research and/or teaching.

Your knowledge of the professor and his work.

The graduate students were interviewed, three at a time, by a research assistant, Ray Svonavec. He followed a similar procedure except that he used line estimation which is well described in a previous report (Hamblin and Smith, 1966).

Analysis. Geometric means were calculated for each of the variables for each professor for each set of observers. These were then transformed to logarithms and analyzed using linear multiple regression - correlation

analyses which condensed the equations by removing the weakest variables, one at a time, to statistically significant relationships. Thus, the logarithmic forms of the hypotheses were tested.

RESULTS

So that the importance of status will be established, before we consider what earns it, both professional and local, we will start with the results for influence and salary.

Influence. The hypothesis which derives from modern exchange theory is that the influence or authority which a person enjoys in an organization will be a function of his status in that organization. In a graduate department, this means his local and not his professional status. The multiple regression results which test this hypothesis are given in Table 1. Note that the professor's data for both departments yield approximately the same answer. Influence is a function of local but not professional status and quite surprising to me at least, the functional equations for the two departments turned out to be almost identical--$I = .9S_L^{1.5}$ and $I = .8S_L^{1.5}$. Furthermore, the explained variance is rather high, .83 and .87.

The results for the graduate students are mixed at best, however. The student data from Department A did compare with the professor's data in that local status turned out to explain a significant portion of the variance, but the equation is not even close ($I = .9S_L^{1.1}$). This is probably because students are in no position to estimate influence accurately. They are just not in the meetings where faculty decisions are made. The cues they do pick up are evidently inaccurate.

Salary. In general, the hypothesis is that salary should be proportional to status; in a graduate department, to local status. However, we noted that with today's rapidly changing salary schedules, in the better departments salary may be determined by professional status. This is because offers are usually determined by professional status, and because salaries are usually raised to match outside offers. The multiple regression results are given in Table 2.

Note that multiple regression results for the two chairmen are almost identical. Salary is a function of local not professional status and the explained variance is similar--.57 and .53. This level of explained variance is quite low. With the Navy salary-status data, the median r^2 for the estimates of any given observer was circa .96 (Hamblin, 1966). It might indicate considerable distributive injustice in both departments.

Table 1. The Relationship[b] of Influence to Local and Professional Status

Independent Variables	Explained Variance[a]			
	Graduate Students		Professors	
	Dept. A	Dept. B	Dept. A	Dept. B
Local Status.	.70	...	.83	.87
Professional Status. . .	...	.74	...	...
Totals (R^2). . . .	.70	.74	.83	.87

In the multiple regression analysis, the beta coefficients where blank spaces were not significantly different from zero, so the presumption is they controlled no variance. In the stepwise condensation procedure used here and in subsequent tables, these variables whose beta coefficients are not significantly different from zero are elininated one at a time, the weakest first, so that only the significant (10 per cent level, two-tailed test) variables remain. In these cases, local and professional status were the independent variables, and one was eliminated as shown. In general, variance may be partitioned in a multiple regression analysis using the following equation:

$$\lambda_i^2 = |\beta_i| \cdot R^2 / \sum_{i=1}^{n} |\beta_i|$$

where λ_i^2 is the variance explained by the ith variable, $|\beta_i|$ is the absolute value of the ith beta weight, R^2 is the multiple correlation, and $\sum_{i=1}^{n} |\beta_i|$ is the absolute sum of the beta weights of the n independent variables included in the analysis. When there is just one independent variable left as in these analyses, $\lambda_i^2 = R^2$.

[b]The four equations are as follows:

A Professors $I = .09S_L^{1.5}$ A Students $I = .9S_L^{1.1}$

B Professors $I = .08S_L^{1.5}$ B Students $I = 1.6\ S_P^{.38}$

Table 2. The Relationship of Salary to Local and Professional Status, Professors' and Chairmen's Data[b]

Independent Variable	Explained Variance[a]			
	Professors		Chairmen	
	Dept. A	Dept. B	Dept. A	Dept. B
Local Status.	...	.56	.57	.53
Professional Status. . .	.80	...	...	...
Totals (R^2)	.80	.56	.57	.53

[a]The beta weights where the blanks are shown were not significantly different (10 per cent level, two-tailed test) from zero so in the stepwise condensation procedure they were eliminated. Presumably the variance explained in these instances is near if not equal to zero. Since only one independent variable survived the analysis $\lambda^2 = R^2$. (See Table 1 for the equation for λ^2.)

[b]The equations based on the Professors' data are:

A $\quad S_M = 2478\ S_P^{.33}$

B $\quad S_M = 1335\ S_L^{.48}$

The Chairmen's data yield the following:

A $\quad S_M = 505\ S_L^{.70}$

B $\quad S_M = 4203\ S_L^{.23}$

When all of the professors' estimates are pooled or averaged via geometric means, a rather different picture emerges for A, the nationally ranked department. In A salary is a function of professional status and the variance explained is .80. Apparently, in A the pooled estimates represent a more viable, accurate picture of the operating status system than do the chairman's alone. In University A, it is quite clear from the interviews with the Dean, that the chairman's recommendations largely determine salary increases. However, it is also quite obvious that the professors exert considerable influence upon the chairman, who evidently does not see eye to eye with them on these matters. Their pooled estimates of status are related to salary much more than are the chairman's estimates.

In contrast, the professors data from B appear to be quite consistent with those of their chairman; in both cases local status explains about 55 per cent of the variation in salary.

Even so, when R^2 is less than .95, it is often better to rely on visual plots to interpret relationships. Analytical results often mask important underlying similarities; this is particularly true when the independent variables are highly correlated as they are in this case where the professors' estimates are pooled. The correlation between local and professional status in A is .94 and in B, .85. While the causal implications of the previous analysis are probably correct, the relationships between salary and the professor's estimates of local status is almost identical as may be seen in Figure 1. Note that in both departments, salary is approximately a square root function of local status ($S_M = cS_L^{.5}$). To me, this, too, was a pleasant but surprising congruency.

Equally surprising are the similarities in the deviant case analysis. In Figure 1, I have circled and labeled those cases whose incomes are out of line by $1,500 or more. Note that in both departments there is an older professor who is an undergraduate teacher who is paid several thousand more than his local status indicates. In each case, the professor does not have a Ph.D., but he had earned tenure via excellent teaching many years before the departments focused upon graduate teaching. One of these was interviewed, and he was quite bitter about his low status. Apparently, in an attempt to compensate he spent much of his time degrading research and graduate education.

Also, in both departments, one finds a pro with relatively low local status and a salary which is several thousand more than his local status indicates. The one whom I interviewed published heavily, was an effective grantsman, turned out Ph.D. students, and had declined offers from first rate universities like Chicago. However, he stayed out of departmental business, did his teaching, and financed the best graduate students who worked on his research projects. He was aware of his relatively low local status and reciprocated with a mild disdain, especially for those who were not publishing well.

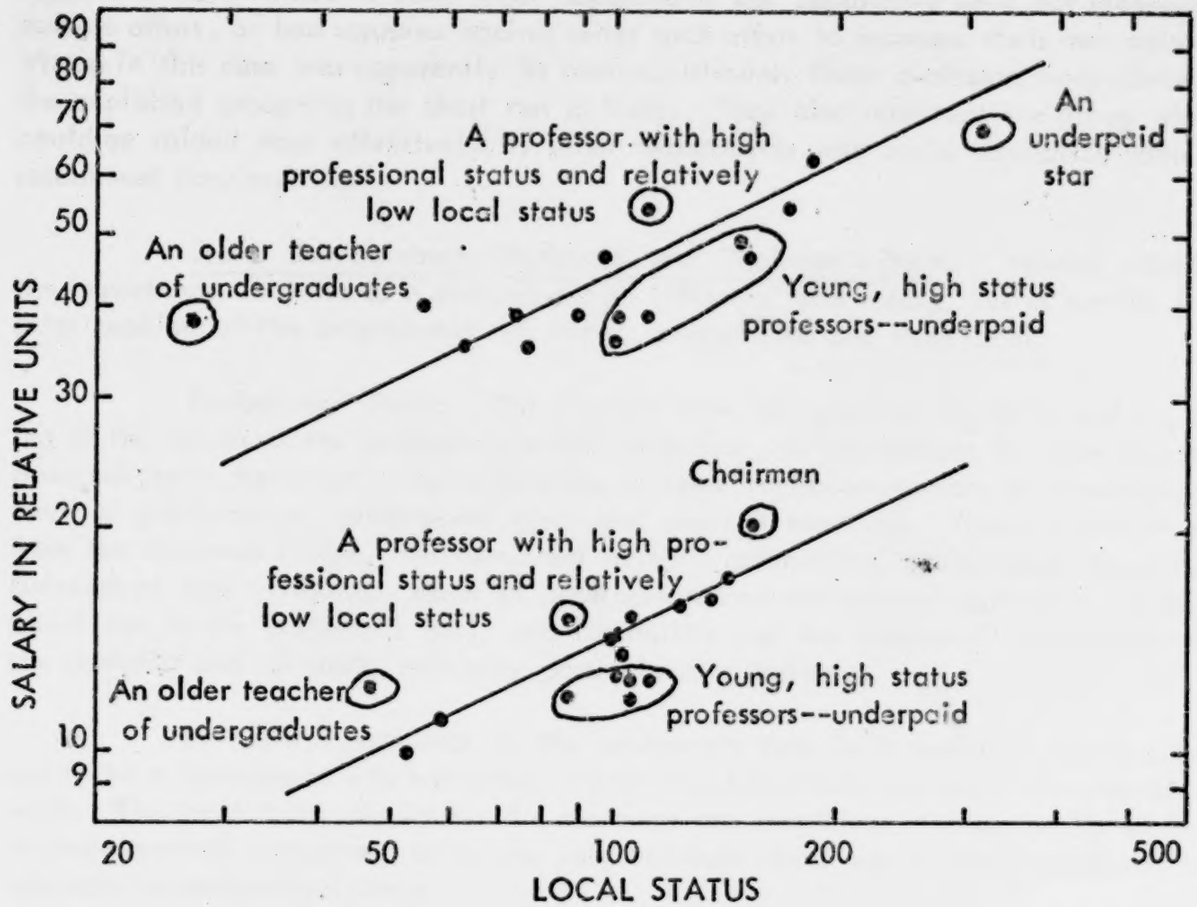

FIGURE 1. On logarithmic coordinates the relationship between salary and local status is plotted for the two departments. The significant result is that in both cases the slope is the same. Salary is approximately a square root function of local status in both cases ($S_M = c\, S_L^{.5}$). The salary is not given in dollars at the request of the Chairman of the Department A since they are confidential in that university. For the purposes of plot, the salaries of the A professors were multiplied by one constant, and the B professors by another. Actually, the salary schedules are approximately equal.

Finally, in both departments there were several young professors whose local status exceeded their salaries by $1,500 or more. These were the good citizen types who were valued in their local departments but apparently were not receiving outside offers, or had scruples against using such offers to increase their own salaries. Virtue in this case was apparently its own punishment; these professors were obviously the exploited group--in the short run at least. They also represent the group which could be raided most effectively by other departments who could capitalize upon the resentment they must feel.

Status Determinants--Professors' and Chairman's Data. Having established the importance of status as a determinant of influence and salary, let us turn to the prior problem of the determinants of status, professional and then local.

Professional Status. The relevant data are given in Tables 3 and 4. Looking at the results of the professor's pooled data first, in Department A, note that professional status turns out to be a function of three variables in order of importance: merit of publications, professional age, and merit of teaching. There is some overlap from the chairman's data. As computed from his estimations, professional status is a function of four variables: merit of publications and professional age--(two variables which are on the professor's list), and likeability and the chairman's knowledge of the professor and his work, two very particularistic variables.

In Table 3 note that for the professor's data in B professional status turns out to be a function of two variables: merit of publications and merit of administrative work. The local status results for B's chairman are something else again; his estimates of grantsmanship turned out to be the only variable which significantly predicted his estimates of professional status.

Local Status. Looking first at the results using the pooled estimates of the professors in Department A, local status turns out to be a function of professional status, professorial demeanor, and professional age (negative). A's chairman's estimates of professional status and merit of publications are significantly related to his estimates of local status.

In Department B, looking first at the results from the professors' estimates, local status was a function of quite a potpourri: professional status, grantsmanship (negative), professional demeanor, likeability, professional age, and the observer's knowledge of each professor and his work. The chairman's estimates similarly yield a potpourri: local status turned out to be a function of the chairman's knowledge of the professor and his work, the merit of the administrative work of each of the professors, professional age, professorial demeanor, professional status, likeability, and negatively, merit of teaching.

Table 3. Variables Related to Professional Status--Professors and Chairmen's Data [b]

Independent Variables	Explained Variance[a]			
	Professors		Chairmen	
	Dept. A	Dept. B	Dept. A	Dept. B
Merit of Teaching.	.25	...	...	...
Merit of Publications	.44	.64	.41	...
Cordiality.	...	...	...	...
Likeability	...	...	.11	...
Merit of Administrative Work	...	.31	...	...
Grantsmanship.	...	...	...	.73
Professorial Demeanor. . . .	...	...	...	...
O's Knowledge of Professor .	...	...	.30	...
Professional Age.	.28	...	.12	...
Totals (R^2)	.97	.95	.94	.73

[a] Using a stepwise condensation procedure, variables whose beta weights were not significantly different from zero were eliminated one at a time until just the significant (10 per cent level, two-tailed test) results obtained, those given here.

[b] The equations for Professors' data:

A $S_p = .26 \cdot T^{.46} \cdot P^{.59} \cdot A_p^{.42}$

B $S_p = .04 \cdot P^{.65} \cdot A_M^{1.0}$

The equations for the Chairmen's data:

A $S_p = .00009 \cdot P^{2.7} \cdot L^{1.1} \cdot K^{.35} \cdot A_p^{.30}$

B $S_p = 7.1 \cdot G^{.5}$

Table 4. Variables Related to Local Status, Professors' and Chairmen's Data

Independent Variables[b]	Explained Variance[a]			
	Professors		Chairmen	
	Dept. A	Dept. B	Dept. A	Dept. B
Merit of Teaching.	...	...	...	(-).05
Merit of Publications	...	...	.28	...
Cordiality.	...	...	...	...
Likeability.	...	.12	...	.05
Merit of Administrative Work .	...	...	...	.22
Grantsmanship.	...	(-).21	...	...
Professorial Demeanor	.17	.15	...	.15
Os' Knowledge of Professor. .	...	.04	...	.25
Professional Status.	.68	.39	.64	.11
Professional Age.	(-).11	.07	...	.15
Totals (R^2).	.96	.98	.92	.98

[a]Using a stepwise condensation procedure, variables whose beta weights were not significantly different from zero were eliminated one at a time until just the significant results (10 per cent level, two-tailed test) obtained, those given here.

[b]The equations for the professors' data:

A $S_L = 2.0 \cdot D^{.27} \cdot S_P^{.66} \cdot A_P^{-.12}$

B $S_L = .61 \cdot L^{.59} \cdot G^{-.10} \cdot D^{.27} \cdot K^{.09} \cdot S_P^{.22} \cdot A^{.09}$

The equations for the chairmen's data:

A $S_L = .15 \cdot P^{.24} \cdot S_P^{.16}$

B $S_L = .06T^{-.16} \cdot L^{.18} \cdot A_M^{.43} \cdot D^{.36} \cdot K^{.64} \cdot S_P^{.06} \cdot A_P^{.18}$

These results give somewhat varied pictures of the status systems as they appeared to operate to various observers in the departments. In passing, we might note that the determinants of status which are functional from the point of view of a graduate department--merit of publication, merit of teaching, and professorial demeanor (the degree to which the professorial role is taken outside of the classroom, i.e., in tutoring, guiding research, and so forth), are much more heavily weighted in Department A than in Department B. Department B gives more weight to merit of administrative work, which, as we have noted, may be functional to a graduate department. However, so does it give more weight to miscellaneous items whose functions for the department are somewhat questionable. More about this problem later.

Status Determinants--The Student's Data. The graduate students estimations may reveal less about the departmental status system than the students themselves, and that about their socialization as prospective physicists. A major part of their socialization is developing the appropriate values. What values, then, are suggested by their data? What evidently determines professional status? Again, in Table 5, a potpourri:

In Department A the professional status of the professors, as estimated by the graduate students, is a function of merit of publications, likeability, negative cordiality, the observers' knowledge of the professor and his work (negative), and professional age. Local status is simpler: it is a function of merit of publications, merit of administrative work, and (negatively) grantsmanship, in that order of importance.

In Department B, professional status, as seen by the graduate students, is evidently a function of grantsmanship, professorial demeanor, professional age, and (negatively) the observer's knowledge of the professors and their work. Local status is again simpler, a function of professorial demeanor and professional status. Conspicuously absent from either list of determinants is merit of publications and merit of teaching. A sad commentary.

Departmental Productivity. Finally, the two departments may be compared along several interesting dimensions of productivity. In Department A, the merit of teaching is highly correlated with the merit of research ($r^2 = .81$). It is as though professors have differential abilities and/or are differentially motivated by the system. However, the system, to the extent it is effective, motivates them to do both teaching and publishing. In contrast, in Department B, the correlation between merit of teaching and merit of publications is quite low ($r^2 = .29$). It is as though some professors specialize in teaching and others in publishing. B's system apparently does not motivate the professors to do both well, or at least not up to their natural ability. Also recall that in previous Tables 3, 4, and 5, that

Table 5. Variables Related to Professional and to Local Status: Graduate Students' Data

Independent Variables	Explained Variance[a]			
	Professional Status[b]		Local Status[c]	
	Dept. A	Dept. B	Dept. A	Dept. B
Merit of Teaching.	...	...	...	...
Merit of Publications	.32	...	.47	...
Cordiality.	(-).23	...	...	...
Likeability	.24	...	...	...
Merit of Administrative Work. .	...	...	.28	...
Grantsmanship.	...	.48	(-).27	...
Professional Demeanor.	...	.21	...	.49
Os' Knowledge of Professor . .	(-).09	(-).10	...	...
Professional Status.	—	—	...	.36
Professional Age.	.08	.13	...	...
Totals (R^2).	.96	.92	.95	.85

[a]In each case the variance was partitioned using the equation given earlier. The blank spaces represent variables whose beta weights we re not significantly greater than zero. The long dashes indicate that professional status was not used as a predictor of professional status.

[b]The equations for professional status are as follows:

A $S_P = .06 \cdot P^{1.5} \cdot C^{1.3} \cdot L^{1.47} \cdot K^{-.38} \cdot A_P^{.46}$

B $S_P = .59 \cdot G^{.62} \cdot D^{.71} \cdot K^{-.29} \quad A_P^{.19}$

[c]The equations for local status are as follows:

A $S_L = 1.22 \cdot P^{.86} \cdot A_M^{.49} \cdot G^{-.39}$

B $S_L = 1.26 \cdot D^{.54} \cdot S_P^{.22}$

in Department B neither the chairman's, the professors', nor the students' data show meritorious teaching a determinant of status, professional or local.

Since 1960-61, Department A has graduated 40 students with the Ph.D. That averages about 8 a year. As may be recalled, Department B's Ph.D. program was started in 1960-61. By 1965-66, they had graduated a total of 8 students with the Ph.D. However, for the 1966-67 academic year, they hope to graduate 7 or 8, a number almost if not equivalent to Department A's recent average.

Neither department has done particularly well in socializing its graduate students to have the values which are functional for a first rate department of physics. In addition to the rather miscellaneous determinants of professional status as found in Table 4, the correlations between faculty and students estimates of professional status are relatively low. r^2 is .81 and .66 in Departments A and B, respectively. Between the faculty and student estimates of local status, the correlation is even lower. r^2 is .74 and .62 for Departments A and B, respectively. These results suggest that Department A does a better job in socializing their graduate students than does Department B, but neither are very great shakes. If both professors and students saw professional or local status the same way, r^2 would be at least .98. The measurement procedures are that good.

Finally, Department A seems to be quite in a different class from B when it comes to publications in physics: respectively, 82 to 12 theoretical and/or experimental articles since 1960.

DISCUSSION

Influence. As expected, the pooled estimations of the professor's influence turned out to be a power function of the pooled estimations of local status. (The power exponent was 1.5 in the case of both departments.) The relationships were not perfect; the R^2s were not circa .98, but much lower, .83 and .88 in Departments A and B, respectively. Actually, it is not to be expected that the correlation should be circa .98. Theoretically, there are three factors which should determine the amount of influence a person should have in an organization: (1) the motivation a person has to exert influence in an organization; (2) the value of any reciprocation which he can make in an exchange; and (3) his ability to schedule his reciprocation effectively. A number of professors who were interviewed appeared to be aware of the operation of the first factor. When asked to estimate power or influence, they countered with the question "Is this the power or influence they could exert in the department, or is it power or influence that they actually exert?" Local status is relevant to the second factor. Presumably, local status gauges the value of approval or expressed satisfaction as forms of reciprocation. However, as the experimental evidence (cf., Ellis and Hamblin, 1966) now clearly indicates, the value of a reinforcer is only translated into influence or power when it is made

properly contingent in an on-going social exchange. With children, for example, giving out reinforcers at the beginning of an exchange sequence resulted in very little influence for the teacher, whereas when she used the valued reinforcers for reciprocation to complete the exchange, she had almost maximal influence. Even so, since local status which summarizes the potential value of reciprocation of each of the professors predicts as well, the results suggest that it is the key variable in this situation, i.e., that most of the professors do choose to exert their influence and most of them know how to schedule reciprocation effectively.

Salary. Also, the relationships predicted by the distributive justice theory obtained rather well. In both departments, salary increased approximately as a .5 power function of the pooled estimates of local status. In neither department did the correlation approach .98; in fact, the lowest correlations obtained in the study, r^2 ranged from .53 to .68. Even so, the deviations from the expected relationship appeared to have the consequences predicted from the distributive justice theory. Adams specifies the consequences of inequity conclude the following possibilities for any given person. When the inequity favors the person, i.e., in our terms when his salary is higher than would be expected on the basis of his local status, he will (1) experience guilt, and in an effort to allay that guilt, (2) work harder or do a better grade of work, or (3) he will distort cognitively, i.e., attack the status systems as being stupid. Recall this is what the undergraduate teacher did, he devalued research and graduate teaching. Similarly, the pro who held himself above and thus devalued the local status system in Department B. Adams (1965) further postulates that if the inequity results in a negative outcome for a person, he will (1) be angry as postulated by Homans, but in addition will do something about it, e.g., (2) alter his input by working less; (3) by doing a poorer quality of work; (4) leave the field, that is, get a job in another university; (5) alter his outcome, that is, putting pressure on the chairman to increase his salary; or (6) distorting his cognition, i.e., accept a status devaluation so his status is appropriate to the salary he is receiving. There were, of course, a number of professors whose salary was lower than that indicated by the local status. None of them complained in the interview, possibly because such complaints would look like status striving and thus reflect negatively upon themselves. But there was one professor in this category who was quite demoralized. One of his high status colleagues confided to me that he felt this man was one of the most gifted theoretical physicists that he knew; this was confirmed by student ratings and by his local status. Yet, in talking to this theoretician it was obvious that he had accepted a relatively low status evaluation indicated by his salary. He had not bothered to seek outside offers and was gradually sinking into oblivion. Thus, an inequitous status system can be very damaging.

Distributive justice theory imples that a perfect relationship between salary and local status would result in a blissful equilibrium, but there is some

question, of course, whether such relationship is possible or feasible. Professors develop at unequal rates, and it is probably difficult to know precisely the value of his publications and his teaching and his other activities until the department has had some chance to live with the results. Then, too, most universities are typically tight on money. The administrators often feel that they have to have a good excuse to give people unusually high raises. Consequently, most chairmen and most deans rely on the outside offer as the objective criteria for giving unusually large raises. This means that most professors whose professional status is increasing rapidly will chronically be behind in salary, and consequently will be chronically dissatisfied. Even so, it may be the only way a university can be run. Furthermore, if the professors were socialized appropriately, outside offers are simply required to validate unusually rapid increases in professional and subsequently local status, it should not be too hard on people. However, it seems to me that chairmen and deans could probably do much more than they do to use small salary increases to achieve a more just or equitable relationship between local status and salary. For one thing, the results suggest that chairmen could gather more adequate data on the professors so that they would be responding to the departmental status system rather than to their own idiosyncratic version of it.

The Subversion of Status Systems. Also, the results of this study suggest that status systems can in fact be subverted so that only part of the rewards, the status, the salary, etc., go not to the professors who are providing the attributes and behavior which are functional for the department. All too large a portion of the reinforcers were wasted on miscellaneous items, e.g., likeability, professional age, while functional behavior, e.g., meritorious teaching was not rewarded at all. Thus, these reinforcers were in effect squandered. Both departments A and B had approximately equal salary schedules to back up their local status systems. Yet 86 per cent of those reinforcers in Department A were exchanged for functional behavior and atrributes: for meritorious teaching (23%); professorial demeanor, i.e., acting like a professor outside of class in tutoring and guiding research, etc. (23%); and for meritorious publications (40%). Of the total, 14% appeared to be wasted. In Department B on the other hand, 52% of the reinforcers were used in exchange for the functional attributes and behaviors--professorial demeanor (15%); meritorious publications (25%); and meritorious administration (12%). The remainder of the reinforcers was wasted on likeability (12%), on discouraging grantsmanship (21%), on variations in knowledge of the professor and his work (4%), and on professional age (7%).[4]

Significantly, the differences in the way the reinforcers were used as input resulted apparently in large differences in output. The professors in Department A were publishing at a rate that was approximately seven times higher than that of the professors in Department B. The output of Ph.D.'s was much higher in A than in B (although this may not be a fair comparison), and in A, good

teaching tended to be correlated with good publications. In other words, the system in A tended to encourage both, but not so in B where the correlation (r^2) was .29.

It might, of course, be argued that the differential output of A and B is a result not of the difference in the status systems, but a differential advantage which the two departments must enjoy in recruiting professors from the outside. A differential recruiting advantage should have some effect, of course, but so has the status or exchange system. Experiment after experiment (cf. Ellis and Hamblin, 1966) has shown now that a programmed exchange system inexorably molds the behavior of the participants according to reinforcement principles and thus determines the output of a system. In general, one may rely on the following rule: Whatever behavior is reinforced by valued reciprocation in a repetitive or programmed exchange will increase in frequency until the cost of the behavioral output will equal the value of the reciprocation. The corollary of this postulate is: If a behavior is absent or is emitted at a very low frequency, then to increase it in frequency, increase the value of the reciprocation accordingly.

The implications of these postulates are rather direct and obvious for Department B. To increase their output both in the way of quality and quantity of publication and in quality of teaching, they need only to allocate a greater share of their reinforcers to these functions. They might very well stop wasting them on likeability--(They are a congenial group anyway so why do they have to pay money for it?); on the discouragement of grantsmanship--(They need all of the research and teaching grants they can get; in particular the quality of their students needs to be upgraded considerably and the only way they can hope to do this besides providing better education is providing better financial support.); on ignorance--(They should become better acquainted with one another's work.); on occupational age--(Who needs to reward people for getting old? They will do it anyway.).

In this functional evaluation, I have taken a rather hard line, and perhaps it should be modified or at least an alternative discussed. In physics it may be functional to include a multiplier for professional age. Because of the high obsolescence in a field which develops as fast as physics does, perhaps a professional age multiplier does compensate the older professors for the constant cost of retooling, so that the older a professor becomes, the more he would be rewarded for work that is meritorious. Thus, such a multiplier could be functionally important to maintain the viability of the staff as they grow older.

In considering the allocation of a department's resources, one might be tempted to hit upon a formula, say 50 % for meritorious publications; 20% for meritorious teaching in the classroom; 15% for meritorious tutoring or guidance of student research projects, including dissertations; 10% proportional to merit

of administrative work; and 15% for a professional age multiplier. Such an allocation would be appealing to some; but it could be arbitrary and most unwise. Alternatively, the approach could be strictly pragmatic if the department is not getting meritorious teaching from a number of their better scholar-publisher types, then according to the exchange postulate, they should just increase the relative value of reciprocation for meritorious teaching. Similarly, if some of the good teachers were not publishing, then the relative value of the reciprocation for publication might be increased. The goal, of course, would be to achieve a functional balance.

The Chairmen's Results. Implicitly throughout this study I have assumed that the real status system in a department is a collective representation and that the best approximation to this collective representation is the pooled estimates of the professors. I may have been biased in these assumptions; however, the pooled estimates of status are related to salary better than are the chairman's estimates. This might indicate to a seasoned sociologist that it was the professors and not the chairman who have the real power in a department; it is their vision, not his, that wins out in the allocation of the hard resources. This appears to me at least to be quite fortunate, because the results from the chairman's estimates were hardly less than disastrous. In both cases, the status estimates were influenced sharply by the chairman's differential knowledge or ignorance of the various professors and their work by the degree to which they differentially liked the various professors and by other such miscellaneous items. In the case of Department B, the chairman's estimates of professional status were almost totally determined by his estimates of the various professor's ability to obtain grants. In his favor, he may have worked backwards; he may have used professional status to gauge the potential ability of the various professors to obtain grants. Thus the results may have been spurious. Even so, the fact that meritoof publication, etc., did not turn out to be a significant predictor of professional status would be enough to make most graduate professors wonder.

The facts are that both of these chairmen were popular in their respective departments, evidently because they are responsive to the needs and demands of the professors and because they evidently rely to some extent on others' evaluations as well as their own. In fact the present data suggest that all chairmen would be wise to rely to a large extent on other professor's evaluations as well as on as much objective information as they can on the various professors, in particular when meeting outside offers, when giving raises, and when giving promotions. Some professors may feel squeamish about evaluating their colleagues, but then they should be aware of how biased the views of one man, even their chairman, can be.

The Socialization of Graduate Students. Certainly in graduate school it is one thing to learn how to do an experiment properly, to develop a theory, to account for a certain empirical result, to write a lucid publishable paper, to make an adequate presentation in a class or in a seminar. But such is not all there is to the professionalization of graduate students. Somehow, they have to take on the values which will allow them to function adequately in an academic or some other scientific organization. In other words, to function well in a first class system which values meritorious publications, meritorious teaching, etc., the physicist should, of necessity, value these attributes and behavior too, as well as be prepared to provide them. From this vantage, the results of the graduate students are somewhat discouraging. They underevaluate meritorious publication, meritorious teaching, and they seem to be hooked on a number of miscellaneous items that would be more appropriate for a gentleman's club than for an academic department.

I would, for example, be much more comfortable with the results from an unpublished study (Buckholdt, 1966) of graduate student evaluations in the social science department. This is a higher ranked department nationally than either of the two included in this study. The professional status estimated by those graduate students turned out to be a 1.1 power function of just one other set of estimates, those of merit of publication. In other words, these students evidently took the hard line that the only way to obtain high professional status in a discipline is to publish well, in quality and quantity. This may not be completely true. Scientific developments are often communicated informally, via lectures rather than by formal publications. Nevertheless, in the main, these students may be correct in their estimations. At least, they are certainly better prepared to operate in the discipline as a whole than graduate students in Departments A and B who focused on things such as negative cordiality, likeability, professional age, or grantsmanship. Neither of these departments will likely produce many graduate students who will compete well in the national discipline until they are professionalized with a much more functional set of values. As noted before, all too many of the graduates end up in third rate colleges and universities.

On Status Systems Generally. Classically, sociology has been dominated largely by the macrotheories of stratification of Marx, Weber, and Veblen, and recently by the Davis-Moore-Tumin controversy as to whether stratification systems are or are not functional.[5] Marx clearly had the insight that status systems could generate conflict, all kinds of trouble, that status systems could become the important basis of different political organizations and ideologies. Veblen recognized status systems as the prime incentive systems in a society (otherwise, people would stop earning and buying when their basic biological needs were met rather than when they have finally outdone the Jones's, which for the

vast majority is never). Both Weber and Veblen also recognized the importance of status in determining life styles. Warner in his many community studies seemed to have documented time and again these essential insights of Weber and Veblen. Of course, Marx assumed that stratification was not functional, and essentially, Tumin argued the Marxian position against Davis and Moore in that famous debate.

The exchange theory of stratification seems to have emerged quite independently of these traditional streams of stratification theory. Blau and his study of the bureaucratic systems in two government agencies seems to have done the research which provided Homans with his essential insight. As Homans was developing his exchange theory of elemntary social behavior, which development was primarily based on the results of operant conditioning studies, he evidently made a substantial epistemic leap--he realized suddenly that status systems involve an exchange and that they have the various operating characteristics implied and the propositions quoted first in this paper.

The exchange theory as it has been developed here differs somewhat from that of Homans. In the first place, Homans is obviously uncomfortable with mathematical formulations. He stresses time and time again in his book that humans are incapable of making ratio estimations, etc. (His may be characterized as a 10 per cent of the variance determinism.) Obviously, I disagree with this. Second, he seems to view all behavior as operant, whereas I view status phenomena as largely being respondent in nature. While the theoretical stimulus-response sequence as postulated here is similar to Homans', it is postulated with more detail and precision than one finds in Homans. These may seem like unimportant differences since there is so much agreement, but the differences are important theoretically, because the implications of the two approaches are so different.

For example, consider the Davis-Moore-Tumin controversy. It is more or less irrelevant to the status exchange theory as it is developed by Homans, and Homans never refers to that controversy. Not so with the theoretical position developed here. If status phenomena is largely respondent in nature as suggested here, then given that people value some things more than others, a status system will develop automatically (because of the inexorable workings of associative conditioning). The people have no choice at all about it. They do not have the option as Marx and Tumin suggest they have, of doing away with stratification systems. Furthermore, it is my position that people as long as they are alive will always value some things more than others. Consequently, my position is that stratification systems will always occur in human society.

However, and this is where I disagree strongly with the Davis-Moore position, status systems, although they develop automatically, need not be functional. People apparently have some options, some choice in choosing what they

value, and in an organization, for example, they may choose not to value those things which are functional for the organization.

Having made a value choice, there will be consequences. It will be reflected in the status system and in the output of the organization as we have seen in this investigation. In my view there are hundreds of organizations which have systems which are not functional and which as a consequence run at a fraction of their efficiency. In many cases, the organizational result is death or destruction, sometimes quite voluntarily.

Beyond such differences, present exchange theory of status as well as Homans' version departs radically from Marxian theory of stratification with respect to hypotheses about conflict and the equilibrating behavior which conflict produces. Marx assumed that stratification per se generates conflict which in turn generates various types of equilibrating and/or revolutionary behavior which ultimately will destroy any stratified system and set up an alternative. He specifically assumed that the way to avoid such probems is to design stratification out of society. This and Homans' version of exchange theory of status, in addition to assuming that stratification is inevitable assumes that conflict occurs only under very special conditions. i.e., to the extent that formal rewards are not proportional to status, to the extent distributive injustice obtains. Furthermore, the present exchange theories of status make the very strong assumption that in a completely egalitarian society where formal rewards are all equalized that distributive justice is likely to be very severe. The assumption is that in such groups certain attributes and behaviors will be valued, e.g., competence, productivity, creativity, valor, etc., and that those who differentially possess any such valued attributes and behaviors would feel the sting of injustice, since differential costs are involved in their development and provision, but there are no differential rewards. The prediction is quite straightforward -- if not anger and a kind of revolution, then a growing apathy and reduction in the output of the specific attributes and behaviors in question.

Finally, the present theory of stratification is the deterministic, but there appear to be certain choice points. Thus, an organization via discussion might develop a consensus about what to value, but that choice will quite automatically determine how local status might be earned, which in turn determines salary and influence. It will determine productivity to a large extent, and consequently, the ability of the organization to survive in competition with the like units. These set up another choice point. To the extent that it is aware of what the situation is, an organization can apparently choose the degree to which distributive justice may be maintained. That choice, however, will determine the amount of conflict present in the organization. Thus, the present exchange theory of stratification assumes that peaceful, productive equilibria can be obtained in an organization, but only to the extent the operating values are functional to the extent distributive justice is maintained.

SUMMARY AND CONCLUSIONS

Using ratio methods developed in psychophysics, the status systems of two physics departments were investigated. The following are a summary of the major findings and conclusions:

(1) Based on pooled estimates by the professors themselves, the amount of influence or power a professor has will increase apparently as a 1.5 power function of the amount of local status which he has in the department. This was true for both physics departments studied. The explained variance was circa .85, so other factors, i.e., the motivation to exert influence and the ability to reciprocate effectively in a programmed exchange may account for some of the residual variance.

(2) Based on the professors' estimates, the amount of salary a professor receives evidently varies approximately as a square root function of local status. However, in the higher ranked Department A, professional status evidently determines salary, possibly because the professors' salaries are negotiated in part by outside offers and outside offers reflect professional status more than local status.

(3) There was some evidence that deviations from distributive justice, i.e., departures from the rule that salary increases as a square root function of local status, produce certain predictable consequences. The meager evidence obtained during the interview suggested that salaries in excess of local status produce guilt and ultimately a devaluation of the local status system. When salaries are less than would be indicated by local status, the result is probably dissatisfaction, a desire to leave the department and university, and at least in one case, where the professor chose to stay, demoralization.

(4) Based on the professors' estimates, local status is determined in part by professional status, although there is some variation as to the degree.

(5) Both local and professional status appear to be determined by a potpourri of variables, some of which are probably not functional for the departments in their competition with other graduate departments, e.g., likeability, negative grantsmanship, and, possibly, professional age.

(6) Department A, whose status system was apparently based almost entirely on meritorious publications and meritorious teaching inside and outside of the calssroom, published approximately seven times more articles than did Department B. The incentive system evidently encouraged the good publishers to do good teaching and vice versa--everyone apparently to the extent of their ability. Also A's output of graduates with the Ph.D. was much higher than that of B.

(7) The estimates by the chairmen of both departments resulted in distortions of the status systems as pictured by the pooled estimates of the professors, and the distortions were always less functional for the departments. Apparently, however, these differences were not too serious, since professors' estimates appeared to be dominant, e.g., they were better related to salary.

(8) The estimates of the graduate students in both departments resulted in severe distortions of the status systems as pictured by the pooled estimates of the professors, again distortions which are much less functional for the department. These results indicate that both departments have a serious problem of socialization. Graduate education not only involves technical competence but professionalization, that is, the inculcation of attitudes and values which will allow a Ph.D. graduate to adapt well to and to compete well in academic and/or research organizations. Both departments place all too many of their graduates in third-rate universities and colleges and it was suggested that this may be less a consequence of training than of inadequate professionalization.

(9) The results generally support the respondent exchange theory of status outlined in the paper, In particular, we know alternative theory explains ? why power functions should describe the relationships found in the data. Also, the present investigation provides another relatively successful example of the application of S. S. Stevens methods of ratio measurement to social psychological phenomenon.

FOOTNOTES

1. This was not exactly found in our previous study (Hamblin and Smith, 1966). However, those data do suggest that local and professional status are different, being earned in quite different ways. However, those data were from graduate students, whom as we shall see, do not necessarily reflect the status systems as seen by the professors or the administration.

2. This generalization appears to be supported by a wide range of data. For two straightforward physiological studies, see Hovland and Riesen (1940) and Bartoshuk (1964). For two studies which show dramatically that a power law describes large numbers of perceptual-motor learning curves, see J. C. Stevens and Savin (1962) and J. C. Stevens (1964). For two social psychological studies which suggest a stimulus response law, see Hamblin et al. (1963), and Sellin and Wolfgang (1964).

3. For prior studies which have suggested these hypotheses, cf. Ellis (1959), Wilson (1942), Coplow and McGee (1958). For prior essays suggesting the distinction between local and professional (or cosmopolitan) status, see Merton (1957) and Gouldner (1957).

4. These percentages were calculated so that the measures of partitioned explained variance which are standardized exponents so that for Department A:

$$\log S_L = \ldots + .17 \log D + .68 \log S_p - .11 \log A_p \quad (1)$$

$$\log S_p = \ldots + .25 \log T + .44 \log P + .28 \log A_p \quad (2)$$

Substituting (2) in (1), it is possible to calculate the percentages:

$$\log S_L = \ldots + .17 \log D + .68 (.25 \log T + .44 \log P + .28 \log A_p) - .11 \log A_p \quad (3)$$

$$= \ldots + .17 \log D + .17 \log T + .30 \log P + .08 \log A_p \quad (4)$$

However, because of the subtractions of A_p, the base of (4) is changed from 96 to 72. So the equation is restandardized to obtain:

$$\log S = \ldots + .23 \log D + .23 \log T + .40 \log P + .11 \log A_p \quad (5)$$

For Department B:

$$\log S_L = \ldots + .12 \log L - .21 \log G + .04 \log K + .39 \log S_p + .07 \log A_p \quad (6)$$

$$\log S_p = \ldots + .64 \log P + .31 \log A_M \quad (7)$$

Substituting (7) in (6):

$$\log S_L = \ldots + .12 \log L - .21 \log G + .04 \log K + .39 (.64 \log P + .31 \log A_M) + .07 \log A_p \quad (8)$$

$$= \ldots + .12 \log L - .21 \log G + .04 \log K + .25 \log P + .12 \log A_M + .07 A_p$$

5. For introductory samples of work by these classical authors and for an extended bibliography, see Bendix and Lipset (1966).

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